

IN THE CLAIMS:

Amendments to the Claims

Please amend claim 5 and rewrite claim 7 in independent form so as to incorporate the features of parent claim 4 therein which has been previously canceled, and please cancel claim 16 without prejudice or disclaimer of the subject matter thereof.

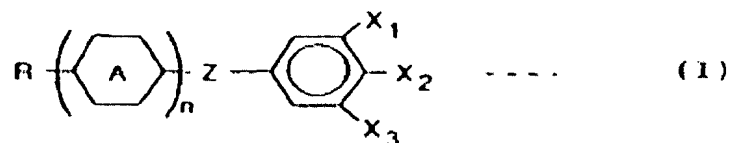
Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) A liquid crystal composite material adapted to be used in a liquid crystal layer of a liquid crystal display device having a pair of substrates with the liquid crystal layer interposed therebetween, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of substrates, said electrode structure including a pixel electrode and a common electrode;

wherein a relationship between a distance l between said pixel electrode and said common electrode and a distance d between said pair of substrates is $l/d \geq 2.0$; and

wherein said liquid crystal composite material includes a liquid crystal chemical compound represented by a general chemical formula (I)



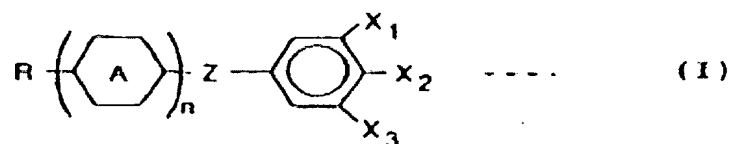
wherein in the formula (I), X_1 , X_2 and X_3 are selected from a group consisting of fluoro group, cyano group, trifluoromethyl group, trifluoromethoxyl group, nitro

group and hydrogen atom, not all three X_1 , X_2 and X_3 being a hydrogen group; R is selected from a group consisting of alkyl group and alkoxyl group having the carbon number 1 to 10 which can be substituted; Ring A is selected from a group consisting of cyclohexane ring, benzene ring, dioxane ring, pyrimidine ring, and-bicyclohexane ring, Z is selected from a group consisting of single bonding, ester bonding, ether bonding, methylene, and ethylene; and n is 1 or 2.

2. (previously presented) A liquid crystal composite material according to claim 1, wherein X_2 is a cyano group.

3. (previously presented) A liquid crystal composite material adapted to be used in a liquid crystal layer of a liquid crystal display device having a pair of substrates with the liquid crystal layer interposed therebetween, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of substrates;

wherein said liquid crystal composite material includes a liquid crystal chemical compound represented by a general chemical formula (I)



wherein in the formula (I), X_1 , X_2 and X_3 are selected from a group consisting of fluoro group, cyano group, trifluoromethyl group, trifluoromethoxyl group, nitro group and hydrogen atom, not all three X_1 , X_2 and X_3 being a hydrogen group; R is selected from a group consisting of alkyl group and alkoxyl group having the carbon number 1 to 10 which can be substituted; Ring A is selected from a group consisting of cyclohexane ring, benzene ring, dioxane ring, pyrimidine ring, and-bicyclohexane

ring, Z is selected from a group consisting of single bonding, ester bonding, ether bonding, methylene, and ethylene; and n is 1 or 2; and

wherein a relation between an elasticity constant K2 and a dielectric anisotropy $\Delta\epsilon$ of said liquid crystal composite material satisfies the relation $K2/\Delta\epsilon < 9 \times 10^{-8}$.

Claim 4 (canceled)

5. (currently amended) A liquid crystal composite material ~~according to claim 4~~, adapted to be used in a liquid crystal layer of a liquid crystal display device having a pair of substrates with the liquid crystal layer interposed therebetween, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of said substrates;

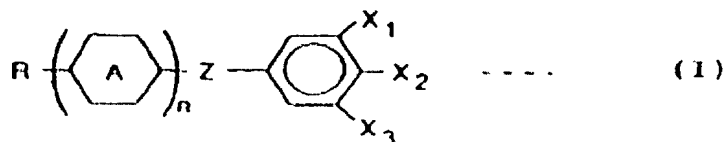
wherein said liquid crystal composite material has a resistivity which is no greater than $1 \times 10^{13} \Omega \cdot \text{cm}$ and not less than $1 \times 10^9 \Omega \cdot \text{cm}$; and

wherein a relation between an elasticity constant K2 and a dielectric anisotropy $\Delta\epsilon$ of said liquid composite material satisfies the relation $K2/\Delta\epsilon < 9 \times 10^{-8}$ [dyn].

6. (previously presented) A liquid crystal composite material adapted to be used in a liquid crystal layer of a liquid crystal display device having a pair of substrates with the liquid crystal layer interposed therebetween, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of said substrates;

wherein said liquid crystal composite material has a resistivity which is no greater than $1 \times 10^{13} \Omega \cdot \text{cm}$ and greater than $1 \times 10^{10} \Omega \cdot \text{cm}$;

wherein said liquid crystal composite material includes a liquid crystal chemical compound represented by a general chemical formula (I)



wherein in the formula (I), X_1 , X_2 and X_3 are selected from a group consisting of fluoro group, cyano group, trifluoromethyl group, trifluoromethoxyl group, nitro group and hydrogen atom, not all three X_1 , X_2 and X_3 being a hydrogen group; R is selected from a group consisting of alkyl group and alkoxyl group having the carbon number 1 to 10 which can be substituted; Ring A is selected from a group consisting of cyclohexane ring, benzene ring, dioxane ring, pyrimidine ring, and-bicyclohexane ring, Z is selected from a group consisting of single bonding, ester bonding, ether bonding, methylene, and ethylene; and n is 1 or 2.

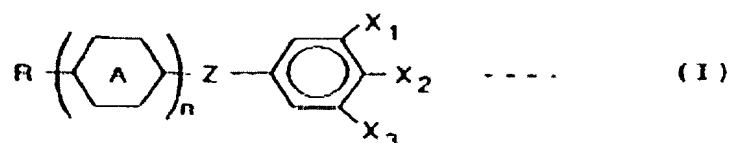
7. (currently amended) A liquid crystal composite material according to claim 4, adapted to be used in a liquid crystal layer of a liquid crystal display device having a pair of substrates with the liquid crystal layer interposed therebetween, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of said substrates;

wherein said liquid crystal composite material has a resistivity which is no greater than $1 \times 10^{13} \Omega \cdot \text{cm}$ and greater than $1 \times 10^{10} \Omega \cdot \text{cm}$;

wherein said electrode structure of said liquid crystal display device includes a pixel electrode and a common electrode, and a relationship between a distance l between said pixel electrode and said common electrode and a distance d between said pair of substrates is $l/d \geq 2.0$.

8. (previously presented) In a liquid crystal display device having a liquid crystal layer interposed between a pair of substrates, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of substrates provided on one of said pair of substrates;

wherein said liquid crystal composite material includes a liquid crystal chemical compound represented by a general chemical formula (I)



wherein in the formula (I), X_1 , X_2 and X_3 are selected from a group consisting of fluoro group, cyano group, trifluoromethyl group, trifluoromethoxyl group, nitro group and hydrogen atom, not all three X_1 , X_2 and X_3 being a hydrogen group; R is selected from a group consisting of alkyl group and alkoxy group having the carbon number 1 to 10 which can be substituted; Ring A is selected from a group consisting of cyclohexane ring, benzene ring, dioxane ring, pyrimidine ring, and-bicyclohexane ring, Z is selected from a group consisting of single bonding, ester bonding, ether bonding, methylene, and ethylene; and n is 1 or 2.

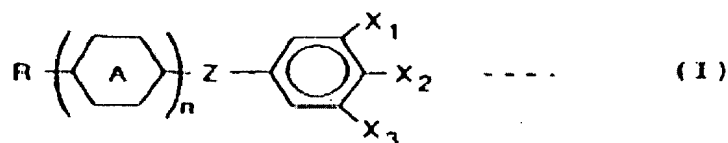
9. (previously presented) In a liquid crystal display device according to claim 8, wherein X_2 is a cyano group.

10. (previously presented) In a liquid crystal display device according to claim 8, wherein a relation between an elasticity constant K2 and a dielectric anisotropy $\Delta\epsilon$ of said liquid crystal composite material satisfies the relation $K2/\Delta\epsilon < 9 \times 10^{-8}[\text{dyn}]$.

11. (previously presented) In a liquid crystal display device according to claim 8, wherein said liquid crystal composite material has a resistivity which is no greater than $1 \times 10^{13} \Omega \cdot \text{cm}$ and not less than $1 \times 10^9 \Omega \cdot \text{cm}$.

12. (previously presented) In a liquid crystal display device having a liquid crystal layer interposed between a pair of substrates, and an electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of substrates, said electrode structure being provided on one of said pair of substrates, said liquid crystal layer including a liquid crystal composite material having a resistivity which is no greater than $10^{13} \Omega \cdot \text{cm}$ and not less than $1 \times 10^9 \Omega \cdot \text{cm}$.

13. (previously presented) In a liquid crystal display device according to claim 12, wherein said liquid crystal composite material includes a liquid crystal chemical compound represented by a general chemical formula (I)



wherein in the formula (I), X_1 , X_2 and X_3 are selected from a group consisting of fluoro group, cyano group, trifluoromethyl group, trifluoromethoxyl group, nitro group and hydrogen atom, not all three X_1 , X_2 and X_3 being a hydrogen group; R is selected from a group consisting of alkyl group and alkoxyl group having the carbon number 1 to 10 which can be substituted; Ring A is selected from a group consisting of cyclohexane ring, benzene ring, dioxane ring, pyrimidine ring, and-bicyclohexane ring, Z is selected from a group consisting of single bonding, ester bonding, ether bonding, methylene, and ethylene; and n is 1 or 2.

14. (previously presented) In a liquid crystal display device according to claim 12, wherein said electrode structure include a pixel electrode spaced from a common electrode, and said pair of substrates are spaced from one another, wherein a relationship between a distance l between [a] said pixel electrode and [a] said common electrode [forming part of said electrode structure] and a distance d between said pair of substrates is $l/d \geq 2.0$.

15. (previously presented) In a liquid crystal display device according to claim 12, wherein a relation between an elasticity constant K_2 and a dielectric anisotropy $\Delta\epsilon$ of said liquid crystal composite material satisfies the relation $K_2/\Delta\epsilon < 9 \times 10^{-8}[\text{dyn}]$.

Claim 16 (canceled)

17. (previously presented) A liquid crystal composite material according to claim 5, wherein said liquid crystal layer having said liquid crystal composite material therein enables display for said liquid crystal display device having said pair of substrates with said liquid crystal layer interposed therebetween, and said electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of said substrates.

18. (previously presented) A liquid crystal composite material according to claim 7, wherein said liquid crystal layer having said liquid crystal composite material therein enables display for said liquid crystal display device having said pair of substrates with said liquid crystal layer interposed therebetween, and said electrode structure for generating an electric field having a component predominantly in parallel with one of said pair of said substrates.